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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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10/766,787

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Shaomin Samuel Mo

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EXAMINER

AGHDAM, FRESHTEH N

ART UNIT

PAPER NUMBER

2611

MAIL DATE

DELIVERY MODE

08/03/2010

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

| | | | |
|------------------------------|---------------------------------------|----------------------------------|--|
| Office Action Summary | Application No. 10/766,787 | Applicant(s) MO ET AL. | |
| | Examiner FRESHTEH N. AGHDAM | Art Unit 2611 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 July 2010.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) -2, 7-8, 10-11, 15-16, 28, 31, and 34 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) -2, 7-8, 10-11, 15-16, 28, 31, and 34 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Arguments

Applicant's arguments with respect to claims 1-2, 7-8, 10-11, 15-16, 28, 31, and 34 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-2, 7-11, and 15-16, 28, 31, and 34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Belveze et al. (US 5,917,861), and further in view of Son et al. (US 2003/0189892).

As to claims 1, 10, 28, 31, 34, Belveze teaches a communication method and/or apparatus comprising mapping a bit stream to two different frequencies (e.g. accomplishing frequency diversity) and transmitting the mapped bit stream to a receiver (col. 1, lines 15-16).

Belveze does not expressly teach a frequency diversity technique that maps a bit stream to multiple bands in a first band order and to multiple bands in a second band order, wherein the first band order and the second band order have different patterns but the same number of bands.

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Son teaches a frequency diversity technique that maps an input data to multiple bands in a first band order (par. 55); mapping the same data to the same plurality of bands in a second band order but has a different mapping pattern than the first band order (Fig. 2, means 271; Fig. 8; par. 31 and 41); and transmitting the bit stream in the first band order and the bit stream in the second band order for receipt by a receiver without changing a transmission frequency band of the multiple bands (Fig. 2, means 271; Fig. 8; par. 31, 35 and 41).

Therefore, it would have been obvious to one of ordinary skill in the art to simultaneously transmit the bit stream in the first band order and the second band order in order to improve the transmission reliability.

As to claims 2 and 11, One of ordinary skill in the art would recognize that it would have been obvious to one of ordinary skill in the art to utilize the combination of OFDM with UWB in order to transmit large amounts of digital data over a wide spectrum of frequency bands with very low power.

Therefore, it would have been obvious to one of ordinary skill in the art to utilize the combination of OFDM with UWB for the reason stated above.

As to claims 7 and 15, Belveze teaches a communication method and/or apparatus comprising mapping a bit stream to two different frequencies (e.g. accomplishing frequency diversity), transmitting the mapped bit stream to a receiver (col. 1, lines 15-16), inherently receiving the transmitted bit stream, demapping the received bit stream according to the first frequency and according to the second frequency, and recovering the transmitted bit stream.

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Belveze does not expressly teach a frequency diversity technique that maps a bit stream to multiple bands in a first band order and to multiple bands in a second band order, wherein the first band order and the second band order have different patterns but the same number of bands.

Son teaches a frequency diversity technique that maps an input data to multiple bands in a first band order (par. 55); mapping the same data to the same plurality of bands in a second band order but has a different mapping pattern than the first band order (Fig. 2, means 271; Fig. 8; par. 31 and 41); and transmitting the bit stream in the first band order and the bit stream in the second band order for receipt by a receiver without changing a transmission frequency band of the multiple bands (Fig. 2, means 271; Fig. 8; par. 31, 35 and 41).

Therefore, it would have been obvious to one of ordinary skill in the art to simultaneously transmit the bit stream in the first band order and the second band order in order to improve the transmission reliability.

As to claims 8 and 16, Belveze further teaches the two signals are combined with one another in the receiver (col. 1, lines 29-40).

One of ordinary skill in the art would recognize that it is well known in the art and/or obvious to decode the combined signals in order to recover the original transmitted signal.

Therefore, it would have been obvious to one of ordinary skill in the art to decode the combined signals for the reason stated above.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to FRESHTEH N. AGHDAM whose telephone number is (571)272-6037. The examiner can normally be reached on 9:00-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chieh Fan can be reached on 571-272-3042. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/F. N. A./

Examiner, Art Unit 2611

/CHIEH M FAN/

Supervisory Patent Examiner, Art Unit 2611